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EXAMINER

SHOSHO, C

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 07/26/01

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/409,338

Applicant(s)
Yamada et al.

Examiner
Callie Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 14, 2001
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5, and 8-12 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, and 8-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s): _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s): _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

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DETAILED ACTION

1. All outstanding rejections except for those described below are overcome by applicants amendment filed 5/14/01. Additionally, while a new reference is utilized, Shimomura et al. (U.S. 5,886,638), and new grounds of rejection are set forth below with respect to Nigam et al. (U.S. 5,973,025), Bates et al. (U.S. 5,958,999), Schwarz, Jr. (U.S. 5,990,198), and Gundlach et al. (U.S. 6,054,505), this action is final necessitated by applicants' amendment.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-2, 5, and 8-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Nigam et al. (U.S. 5,973,025).

Nigam et al. discloses an ink jet ink having a viscosity of 1.5-15 cP wherein the ink comprises azo dye, aqueous medium, glycerol, and basic polymer corresponding to presently claimed formula I wherein L is a single bond, -CO-, arylene, or alkylene and Am is a nitrogen atom-containing heterocyclic group such as 1-imidazolyl. Nigam et al. also disclose the use of

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other basic polymers including polyvinyl pyrrolidone, polyvinyl pyridine, and polyallylamine. It is disclosed that the polymer has a molecular weight of preferably 300-100,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.4, lines 11-13, col.5, lines 45-46, col.8, lines 52-53, col.9, lines 49-50, col.10, lines 34-38 and 42-46, col.11, lines 59-65, col.12, lines 41-42 and 48-49, col.13, lines 40-45, col.18, lines 42-43, col.20, lines 6-15, and col.33, lines 15-17).

Particular attention is drawn to example 44 which discloses an ink comprising dye, 2% glycerol, and, as calculated, approximately 2% basic polymer such as poly(vinylpyridine).

In light of the above, it is clear that Nigam et al. anticipates the present claims.

4. Claims 1-2, 5, and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimomura et al. (U.S. 5,866,638).

Shimomura et al. discloses an ink jet ink comprising azo dye, aqueous medium, 3-40% glycerol, and basic polymer corresponding to the presently claimed polymer wherein L is a single bond, -CO-, -O-, or alkylene and Am is a nitrogen atom-containing heterocyclic group. It is disclosed that the polymer has a molecular weight of preferably 5,000-300,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.10, line 65, col.11, lines 25-64, col.12, lines 40-44, col.13, lines 17-19 and 54, col.14, lines 9-12, col.18, lines 48-65, and col.22, line 15).

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Particular attention is drawn to Table 1 which discloses a yellow ink, for instance, comprising dye, 5% glycerol, and 2% basic polymer as presently claimed. Although there is no disclosure of the viscosity of the ink, given that Shimomura et al. disclose an ink comprising identical types and amounts of ingredients as presently claimed, it is clear that the ink of Shimomura et al. also inherently possesses viscosity as presently claimed.

In light of the above, it is clear that Shimomura et al. anticipates the present claims.

5. Claims 1-2, 5, and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Schwarz, Jr. (U.S. 5,990,198).

Schwarz, Jr. discloses an ink jet ink having a viscosity of less than 10 cP wherein the ink comprises azo dye, aqueous medium, approximately 3-60% glycerol, and 0.5-10% basic polymer corresponding to presently claimed formula I wherein L is a single bond and Am is a nitrogen atom-containing heterocyclic group such as imidazolyl or vinyl pyrrolidone. It is disclosed that the polymer has a molecular weight of preferably 1,000-100,000 or most preferably 2,000-5,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.6, lines 44-45, 48, 59-63, col.7, lines 1 and 5-63, col.8, lines 22, 26, and 45, col.10, lines 26-27 and 37-38, and col.10, line 61-col.11, line 1).

In light of the above, it is clear that Schwarz, Jr. anticipates the present claims.

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6. Claims 1-2, 5, and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Gundlach et al. (U.S. 6,054,505).

Gundlach et al. disclose an ink jet ink having a viscosity of no more than 10 cP wherein the ink comprises azo dye, aqueous medium, approximately 3-60% glycerol, and 0.1-50% basic polymer corresponding to presently claimed formula I wherein L is a single bond and Am is a quaternary ammonium group or a nitrogen atom-containing heterocyclic group such as imidazolyl or vinyl pyrrolidone. It is disclosed that the polymer has a molecular weight of preferably 1,000-100,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer and the above ink (col.6, lines 65-66, col.7, lines 2, 15-16, and 21, col.9, lines 16-52, col.9, line 53-col.10, line 23, col.11, line 65-col.12, line 58, col.13, lines 15-17, 31, and 49, col.16, lines 1-5, col.23, lines 18-24 and 31-32, and col.23, line 55-col.24, line 5).

In light of the above, it is clear that Gundlach et al. anticipates the present claims.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Schwarz, Jr. (U.S. 5,990,198) or Gundlach et al. (U.S. 6,054,505).

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The disclosure with respect to Schwarz, Jr. and Gundlach in paragraphs 5 and 6, respectively, are incorporated here by reference.

The difference between either Schwarz, Jr. (U.S. 5,990,198) or Gundlach et al. and the present claims invention is the requirement in the claims that the basic polymer comprises side chain of nitrogen atom-containing heterocyclic group which is 1-imidazolyl.

It is noted that both Schwarz, Jr. and Gundlach disclose a basic polymer wherein the side chain contains 2-imidazolyl wherein the present claims require 1-imidazolyl. In each case, the only difference between the reference polymer and that presently claimed is the position where the imidazolyl side chain is attached to the polymer. However, absent any evidence of criticality, one of ordinary skill in the art would expect the polymer to function in the same manner regardless of the position of attachment of the side chain, and thus, one of ordinary skill in the art would have arrived at the claimed invention.

9. Claims 1-2, 5, 8-9, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bates et al. (U.S. 5,958,999) in view of Breton et al. (U.S. 5,938,827) and Nigam et al. (U.S. 5,973,025).

Bates et al. disclose an ink jet ink containing dye, aqueous medium, glycerol, and 0.1-10% basic polymer such as polyvinylpyrrolidone and polyvinylpyridine which corresponds to presently claimed formula I wherein L is a single bond and Am is a nitrogen atom-containing heterocyclic group including vinylimidazole. It is disclosed that the polymer has a molecular

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weight of less than 50,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.3, lines 15-35, col.4, lines 11-15, col.5, lines 48-50, col.7, lines 16-17, 36, and 48-57, col.9, line 65, col.10, lines 20 and 30, and example 11).

Bates et al. does not explicitly disclose the type of dye used, but does disclose the use of a dye known as Fast Black 2 (col.17, lines 3-4). Breton et al., which is drawn to ink jet inks, discloses that Fast Black 2 is indeed an azo dye (col.8, line 6 and last two formula).

The difference between Bates et al. and the present claimed invention is the requirement in the claims of the viscosity of the ink.

Bates et al. does not explicitly disclose the viscosity of their ink jet inks. However, given that if the ink viscosity is too high, the ink clogs the printer nozzles, it would have been within the level of one of ordinary skill in the art to control the viscosity of the ink jet ink to avoid printer clogging. Evidence to support this position is found in Nigam et al. which discloses that the viscosity of an ink is adjusted depending on its desired utility, and that for ink jet inks, the viscosity is typically 1.5-15 cP (col.18, lines 38-45).

In light of the above, it would have been obvious to one of ordinary skill in the art to control the viscosity of the ink jet ink of Bates et al. to 1.5 to 15 cP in order to produce an ink that will not clog the printer nozzles, and thereby arrive at the claimed invention.

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Response to arguments

10. Applicants' arguments filed 5/14/01 have been fully considered but they are not persuasive.

Specifically, applicants argue that the present claims cannot be rejected over Nigam et al., Schwarz, Jr., Bates et al., or Gundlach et al. in light of the 1.132 declaration filed 5/14/01 which establishes unexpected or surprising results over the cited prior art.

The 1.132 declaration compares inks within the scope of the present claims, i.e. which comprises glycerol and basic polymer, with inks outside the scope of the present claims, i.e. which comprise basic polymer but no glycerol. With respect to Nigam et al. and newly utilized Shimomura et al., which each exemplify an ink identical to that presently claimed, because Nigam et al. and Shimomura et al. already disclosed the criticality of using a combination of glycerol and basic polymer, the results of these comparisons in the 1.132 declaration are not believed to be unexpected or surprising especially over this cited art.

Additionally, with respect to Schwarz, Jr., Bates et al., and Gundlach et al., it is significant to note that each of these references do disclose inks comprising glycerol and basic polymer as presently claimed. Further, it is the examiner's position that the 1.132 declaration is not successful in establishing unexpected or surprising results over these references for the following reasons.

It is noted that the comparative data shows that inks comprising glycerol have better hue when printed on genuine paper than inks which do not comprise glycerol. However, this is not

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believed to be unexpected or surprising given that it would have been a reasonable expectation of one of ordinary skill in the art that inks which contain glycerol, which is hydrophilic, would react differently with paper substrate than inks which do not contain glycerol. Further, while comparison example 6 of the declaration, for instance, exhibits hue with an A rating with photo paper and an A-B rating with genuine paper while example 1, which contains glycerol, exhibits hue with an A rating with genuine paper as compared to comparison example 6, which contains no glycerol, which exhibits hue with an A-B rating with genuine paper, there is no indication of what the difference is between these two ratings. For instance, is the difference between A and A-B analogous to a 1% difference in hue, 20% difference in hue, etc.

Thus, it is the examiner's position that the declaration does not provide clear and convincing evidence of patentability of the present claims over the cited prior art.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

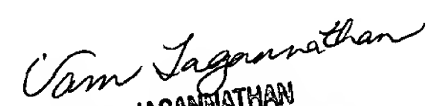
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Callie Shosho

7/24/01



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